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[Continued on next page]

(54) Title: DYNAMIC BLIND SIGNAL SEPARATION

Initialisation information from last window $\widetilde{\mathsf{U}}_\mathsf{k}$ -21 Initialise the data (orthogonal components) in the second order stage Second order stage Decorrelation: 'Small' updates using Jacobi \tilde{V}_{k+1}^{T} Orthonormal signals 25 $\mathbf{R}_{\mathbf{k}}$ Initialise the data (independence) in the higher order stage 24 Higher order stage ICA: 'Small' updates using higher order statistics -28

Separated Signals

(57) Abstract: A method for dynamic blind signal separation generates initialisation information by processing an immediately preceding data window. This information is input at (21) and used at (22) to initialise orthogonality of data in an immediately following window. Initialised data are decorrelated at (23) with small update angles using a Jacobi technique. Steps (22) and (23) are collectively a second order stage of processing in statistical terms producing orthonormal signals. The orthonormal signals are initialised at (25) and then undergo separation at (27) by ICA with small angle updates using statistics higher than second order to produce separated signals. method may be implemented in an acquisition phase to separate signals and among them identify desired signals, and a subsequent phase in which only the desired signals are separated. It may also be implemented by obtaining first results, and subsequently iteratively updating immediately preceding results using subsequent data snapshots to produce snapshot results for combining with immediately preceding results weighted to produce exponential fading.

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